

**ABSTRACT**

A method for facilitating wavelength-specific and packet-switched routing comprises the steps of demultiplexing wavelengths propagating on a primary metropolitan fiber ring, determining a destination address for the wavelength, accessing a look-up table, determining if the destination address matches a local address contained in the look-up table and switching the wavelength based on a result of the determining step. A method for providing local metropolitan switching and routing and broadband local access distribution described in terms of the functions of the layers comprises the steps of interfacing with a primary fiber metropolitan ring and a local customer primary distribution/aggregation node via transport branches of a mesh architecture, routing specific wavelengths and newly assigned wavelengths to and from a customer's premises and handling customer specific wavelength and packet routing via one of fiber, millimeter wave radio and free space optical communications.